For many of us, our choice of where to complete our residency was a life-defining moment.
Welcome to the latest issue of *Ophthalmology Update* from Cleveland Clinic’s Cole Eye Institute.

For many of us, our choice of where to complete our residency was a life-defining moment. It was the first time we created a “top five” list of stellar ophthalmology programs and the first time we began to seriously consider what we wanted the trajectory of our career to be within our specialty. The strengths of the training program influence what kind of ophthalmologist we become — academic versus private practice, general versus subspecialty focused. The people in the program, our mentors and colleagues, often shape the course of our career and our life. Friendships are made in residency that last a lifetime, and some of us even found our spouse in our residency years.

For many of us, the location of our residency set the course for where we would set down roots and forge our career. For all, it prepared us for a challenging yet rewarding career path.

At the Cole Eye Institute, we are proud to offer one of the best residency programs in the United States. Our combination of internationally recognized faculty, large and varied patient population, outstanding facilities, and rigorous curriculum produces ophthalmologists who are accepted into the most prestigious fellowship programs around the nation or recruited to top academic or clinical positions. They not only go forth with the skills to make an impact on the world now, but also with the commitment to display the compassion that is inherent in Cleveland Clinic’s foremost operating directive: Patients First. Equally important, our residency and fellowship programs are a highly collegial experience, full of opportunities for personal and intellectual growth for those whom we are fortunate to train.

Education has to evolve to keep up with the changing world in which we live, and the Cole Eye Institute is proud to be on the leading edge of that evolution. We have dedicated this issue of *Ophthalmology Update* to sharing the story of our residents’ journey with you, from the past to the present and into the future. We hope it inspires you to remember the passion and excellence of the people who were an essential part of your training years.

Sincerely,

Daniel F. Martin, MD
Chairman, Cole Eye Institute
What do you remember about your residency years? After you went through the process of picking your top programs, fond memories of good mentors, close friends and exciting new opportunities no doubt blend with those of long hours, grueling work and utter exhaustion.

Listen in on the conversation with three people who completed their ophthalmology residency at Cleveland Clinic and hear what lessons they still carry with them all these years later. It might lead you down a memory lane of your own.
RESIDENCY REMEMBRANCES

Back then, you always thought it would be nice to be able to do more surgery. I think most residents always think that quantity is the most important thing. There is a quality side to it as well. I think we had a good mixture of both.

Cleveland Clinic delivers the expertise and care of a major medical center, but in a setting that is almost like a private practice. Patient care was always the central focus.

During stressful times at work, some of the physicians would sit down and talk to me about it and would even ask about family life. I already had two children, and balancing it all wasn’t easy. It was a great experience, but there was a lot of pressure.

At Cleveland Clinic, I learned the value in collaborating with colleagues early on if I had any questions. I have incorporated that attitude into my career.

› See video interview at: ConsultQD.org/Panzo
RESIDENCY REMEMBRANCES

Residency is tough. You’re just kind of sitting out on your own after medical school and you’re being called “Doctor” and you don’t always think you know what you’re doing, and so times can be stressful. There is a lot to learn in ophthalmology, and fortunately my wife and I were both residents, so sharing experiences when we got to see each other was soothing.

I think the thing that sets programs apart is the opportunity to have one-on-one informal teaching with world-renowned faculty regarding patients that are seen in a practice. I had that at the Cole Eye Institute.

I always knew I wanted to be in academics, but I also wanted to be exposed to a variety of opportunities. Cleveland Clinic offered exceptional clinical training but with a slant toward creating academicians, which was a good fit for me.

My residency at Cleveland Clinic is the reason I am here today.

› See video interview at: ConsultQD.org/Jeng
REECHA BAHL, MD

PEDIATRIC OPHTHALMOLOGIST, THE KRESGE EYE INSTITUTE
ASSOCIATE RESIDENCY PROGRAM DIRECTOR, WAYNE STATE UNIVERSITY SCHOOL OF MEDICINE

RESIDENCY › CLEVELAND CLINIC, 2011
PRACTICE SETTING › MIDWEST; ACADEMIC/MEDICAL CENTER
SPECIALTY › PEDIATRIC OPHTHALMOLOGY AND ADULT STRABISMUS

RESIDENCY REMEMBRANCES

At the Cole Eye Institute, you had so many internationally renowned physicians that were kind of at your disposal for any kind of mentorship, clinical questions, research questions and questions about your future. They really were there just to help you, in addition to taking care of the patients.

At our graduation we had a skit that was our free rein to make fun of everything that we found funny during residency. It was a lot of fun to kind of sit back and make fun a little bit. All of the physicians are very personable so I didn’t feel like I needed that letdown, but it definitely was fun.

My residency really prepared me for an academic career, and I employ many of the approaches that were used there. For example, sitting down with residents after clinic and asking what questions they have about the day’s patients. We also took quizzes after Grand Rounds, which were very helpful in preparing us to take examinations.

› See video interview at: ConsultQD.org/Bahl
THE LIFE OF A RESIDENT

Residency is a three-year journey that sets the trajectory of your career. With many milestones along the way, here is a look at the path an ophthalmology resident at the Cole Eye Institute follows on his or her way to prestigious fellowship programs and top academic or clinical positions.
TWO YEARS AWAY
Faculty members pore over 500+ applications for the residency positions and invite about 50 for interviews.

THREE MONTHS AWAY
Residents secure housing in the Greater Cleveland area. Excellent schools, reasonable commutes and affordable housing make the suburbs attractive for young families, while downtown has trendy options for those who prefer urban living.

YEAR 1
GETTING STARTED
Residency kicks off with a weeklong introduction to Cleveland Clinic’s culture, infrastructure and electronic medical record system.

LEARNING THE ROPES
It’s back to the Cole Eye Institute for a two-week high-yield orientation course. Topics include how to perform a complete ophthalmologic workup and a review of the most common conditions residents will see early in the program.

GETTING A MENTOR
All residents get a physician “mentor” who will serve as their professional adviser and advocate. The duo will meet formally at least twice a year. Residents also meet monthly with the program director to provide feedback on the program.
STAYING IN TOUCH
All residents get an iPhone® to access email and patient software and to be paged. They also receive a yearly allowance for textbooks, journal subscriptions or a tablet device.

BLOCKING
By the end of the first month, residents start the eight first-year rotational “blocks.” Four blocks are spent at MetroHealth Hospital’s resident-run ophthalmology clinic, with oversight from an attending staff member.

MORE ROTATIONS
The rest of the first year is spent rotating between retina, uveitis and anterior segment. These blocks are structured as mini apprenticeships — residents are partnered with staff experts.

BUDDY CALL
First-year residents provide primary coverage via home call for evening and weekend emergencies at MetroHealth Medical Center. A “buddy-call” system devised by the residents allows the first-year residents to be directly supervised by a third-year resident until he or she is comfortable managing patients independently. If an operating room procedure is required, an attending physician is always present.

SURGICAL TRAINING
Weekly surgical training laboratory sessions also begin in the first year. Our training simulation laboratory has advanced workstations, including operating room-grade microscopes, phaco units and the Eyesi surgical simulator, the most realistic virtual reality ophthalmic surgery training device. On any given day, as many as four staff instructors are present.
OTHER FIRST-YEAR HIGHLIGHTS

**Ocular pathology:** Regular sessions with staff experts are supplemented by a full-day review course taught by visiting professor Ralph Eagle, MD, a world-renowned ocular pathologist and educator.

**Didactic lectures:** These are given by Cole Eye Institute faculty, who are often nationally recognized experts in their subspecialty.

**Grand Rounds:** Residents present challenging clinical problems they have encountered, followed by a 10-question “quiz.” Residents are graded cumulatively throughout the year.

**OKAP:** In the second half of the academic year, significant attention is paid to helping the residents prepare for the annual Ophthalmic Knowledge Assessment Program examination.

**Ethics:** Residents, staff members and a bioethicist have quarterly discussions of cases with ethical issues. In this protected environment, professionalism, honesty, integrity and equity are explored.

**Having fun:** Residents have lots of choices for their free time: checking out the scenic vistas of gorgeous area parks, dining at one of the numerous award-winning restaurants in town, visiting world-class museums or catching LeBron James making a slam dunk.

YEAR 2

CONTINUING ROTATIONS
Second-year clinical rotations delve deeper into pediatrics, oculoplastics, neuro-ophthalmology and ocular oncology. Residents perform extensive macroscopic ophthalmic interventions and recruit patients for refractive surgery. They complete rotations at community sites, performing many primary cataract surgical procedures with close supervision.

Second-year residents provide ophthalmic home call coverage for Cleveland Clinic and the Cole Eye Institute, with staff physicians and subspecialty fellows serving as backup providers.

LOOKING AHEAD
Many residents are developing a subspecialty interest at this time. Cole Eye Institute residents consistently match to top subspecialty fellowship programs.

PURSUING QUALITY
Participating in the Quality Improvement and Patient Safety committee helps residents learn from dilemmas in patient care and risk management, fostering a culture of conscientious error reporting and continuous self-improvement.
YEAR 3

FULL IMMERSION
Residents are now fully immersed in their surgical training. Rotation blocks cover glaucoma surgery, retinal and vitreoretinal surgery, and anterior segment surgery. Residents also can perform femtosecond laser-assisted cataract surgery and work with premium intraocular lenses.

SELECTING A CHIEF
The residents and the faculty vote on a chief resident, with the resident votes carrying equal weight to the faculty’s. The new leader attends a two-day leadership course offered by the Cleveland Clinic Academy in July.

CAPPING OFF THE YEAR
Resident Research Day lets residents and fellows present their research from the previous year. Cole Eye Institute residents typically graduate with the highest number of peer-reviewed journal articles and scientific presentations of any trainee at Cleveland Clinic. Many of these projects are published in premier medical journals and presented at national or international venues.

The evening also includes the graduation ceremony and awards. Spouses and families join the celebration. Residents are toasted (and occasionally “roasted”) by their faculty mentors and have the opportunity to respond in kind. The evening concludes with the “Resident Skit,” a production that generates raucous laughter and water-cooler discussion for weeks.

LIFETIME AMBASSADORS
After graduation, residents’ affiliation with the Cole Eye Institute is by no means over. Alumni are invited to formal receptions at national meetings as well as numerous informal interactions. They are lifetime ambassadors of our program.
RESEARCH

Cole Eye Institute residents are encouraged to conduct research. Their research activities are supervised carefully by an experienced clinical investigator. Residents, fellows and staff participate in the annual Residents and Alumni Meeting, a scientific forum for the presentation of research projects. A sampling of these presentations is presented here and in full-format at ConsultQD.org/oph.

Safety and Effectiveness of a Small-incision Lateral Eyebrow Ptosis Repair Technique Using a Frontalis Muscle Transposition Flap

Preethi S. Ganapathy, MD, PhD; Rao V. Chundury, MD, MBA; Julian D. Perry, MD

This 10-month chart-review study sought to evaluate the safety and effectiveness of a frontalis muscle transposition flap (FMTF) for treatment of lateral eyebrow ptosis. The researchers looked at the preoperative and postoperative photographs to assess corneal diameter, central brow height and lateral brow height.

The charts of 31 patients (53 eyes) were included, of whom 20 were female and 11 were male. Nine cases were unilateral and 22 were bilateral. Thirty-nine eyes underwent concomitant surgeries, including upper blepharoplasty (33 eyes), conjunctival-Müllerectomy blepharoptosis repair (three eyes), and intralesional tetracycline injection for festoons (three eyes).

Average preoperative central and lateral eyebrow heights were 9.63 and 14.75 mm, respectively. Those increased to 10.41 and 16.58 mm, respectively, after the procedure. The 1.78-mm difference in lateral eyebrow height was statistically significant (P = 0.002), while the change in central eyebrow height was not.

The investigators concluded that an FMTF effectively addresses lateral eyebrow ptosis repair through a small, relatively concealed incision. However, it produces temporary scalp hypesthesia in a significant number of patients, and long-term results remain unknown.

Results compare favorably with other browlifting studies using digital image measurements.

Presented as a poster at the 2015 annual meeting of the Association for Research in Vision and Ophthalmology, Denver.

Read more at: ConsultQD.org/ptosis
Caspase-8-mediated Cleavage Inhibits IRF-3 Protein by Facilitating Its Proteasome-mediated Degradation

Nathaniel Sears, MD; Ganesh C. Sen, PhD; George R. Stark, PhD; Saurabh Chattopadhyay, PhD

This paper investigated the hypothesis that there is a regulatory switch between inflammation and apoptosis. As a model for these investigations, researchers studied the pathway by which cells sense viral infection via the receptor retinoic acid inducible gene I (RIG-I). When activated, RIG-I initiates the phosphorylation of interferon response factor 3 (IRF-3), leading to the Type 1 interferon antiviral response. While a medical student, Dr. Sears noted that after activation and initiation of a Type 1 interferon response, IRF-3 degrades to a separately identifiable fragment that maintains immunoreactivity similar to the mature protein. Pursuing a hunch that this was a fragment of IRF-3 and part of the regulation of IRF-3 activity, he showed that full-length IRF-3 has a caspase recognition sequence. He then definitively demonstrated that caspase-8 cleaves IRF3 after activation, targeting it for degradation to inhibit downstream gene induction. Because caspase-8 activation leads to apoptosis, its interaction with the IRF-3 substrate is a form of molecular rheostat that determines whether a cell’s fate is inflammation (prolonged IRF-3 activation) or apoptosis (cleavage of IRF-3 by caspase-8).

The researchers are working with several ocular cell lines to characterize their specific response to identical viral stimulus. They have determined differences in mortality that coincide with specific markers of IRF-3 activation, each dependent on cell type. The goal of future research on this topic is to further understand the molecular mechanism that underlies regulation between chronic inflammation and programmed cell death. Learning how cells choose between inflammation and apoptosis may help develop neuroprotective strategies for glaucoma.

Our findings help explain the observation that caspase-8-deficient mice exhibit inflammatory skin disorders due to unregulated activation and accumulation of active IRF-3.

J Biol Chem. 2011 Sep 23;286(38):33037-44

Read more at: ConsultQD.org/caspase8
Hydroxychloroquine Screening Practice Patterns Within a Large Multispecialty Ophthalmic Practice

Vishal Parikh, MD; Adrian Au; Yasha S. Modi, MD; Justis P. Ehlers, MD; Andrew P. Schachat, MD; Rishi P. Singh, MD

Long-term use of the antimalarial drug hydroxychloroquine (HCQ) has long been known to have a toxic effect on the retina. Screening for HCQ toxicity is a common indication for seeing an ophthalmologist. HCQ retinopathy was previously thought to be uncommon with a prevalence of approximately 1 percent. However, given more sophisticated testing to screen for HCQ toxicity, prevalence is now believed to have increased to about 7.5 percent in patients who have taken HCQ for at least seven years or have a cumulative dose of 1 kg.

It is critical to identify HCQ toxicity as treatment cessation is the only way to prevent progression of the disease. Previous studies have shown poor adherence with screening guidelines issued by the American Academy of Ophthalmology, so we sought to determine the compliance rates in our large multispecialty ophthalmic practice. Guidelines define proper screening as one subjective test: Humphrey visual field; and one objective test: spectral domain optical coherence tomography, fundus autofluorescence or multifocal electroretinography.

We found that of 735 initial screening visits, 341 (46.4 percent) were appropriately screened, 204 (27.8 percent) underscreened and 190 (25.9 percent) inappropriately screened. Of those who presented solely for screening (506), 307 (54.8 percent) were appropriately screened, 144 (25.7 percent) underscreened and 109 (19.5 percent) inappropriately screened. We found significant variations in practice patterns depending on an ophthalmologist’s specialty interests, and concluded that there is room for improvement in adherence to the screening guidelines.

Given the growing importance of HCQ screening and increased ability to identify early onset disease, we advocate use of electronic medical records to remind physicians when screening tests are necessary.


Read more at: ConsultQD.org/HCQ
The Use of a Mobile Van for School Vision Screening: Results of 63,841 Evaluations

Joseph F. Griffith, MD; Rhonda Wilson; Heather C. Cimino, OD; Mayme Patthof; Daniel F. Martin, MD; Elias I. Traboulsi, MD

Cleveland Clinic’s Vision First program uses a customized van staffed with an ophthalmic technician and/or optometrist to visit students enrolled in pre-kindergarten, kindergarten or first grade in the Cleveland public schools. This retrospective cohort study looked at the outcomes from 63,841 evaluations performed from 2002 to 2014.

All children underwent initial screenings, and glasses were provided to those who needed them. Children who failed initial screenings underwent cycloplegic retinoscopy and ophthalmoscopy and were referred to pediatric ophthalmology as appropriate.

The study found that 6,386 (10 percent) of the children met one or more referral criteria: 5,355 (8.39 percent) received glasses, 1,125 (1.76 percent) had strabismus and 873 (1.37 percent) had amblyopia.

Over the 12-year period, there was no statistically significant change in the prevalence of strabismus or amblyopia, which the authors said demonstrates the need to continue this screening program to reach young children in underserved communities.

Costs:
- Cost of the equipped mobile van: $100,000 (in 2002)
- Cost per child screened: $26 (range $20.31-$33.36)
- Cost per pair of glasses dispensed: $33

There are numerous approaches to vision screening in pediatric populations. Vision First is a unique model that we believe has had a positive impact on children and families in Cleveland.


Read more at: ConsultQD.org/visionfirst
What Will Residency Training Look Like in the Future?

Think how much residency training has changed in recent years. From 3-D virtual surgical simulators to stem cell and genetic therapy to sessions in ethics and business, today's programs are evolving quickly. Two of Cole Eye Institute’s leaders in education share their vision about what the future holds.

Elias I. Traboulsi, MD, MEd, Vice-Chairman for Education at the Cole Eye Institute, and Jeffrey Goshe, MD, Residency Program Director, offered their thoughts on this question.

Residency training programs, for the most part, have been building on what was determined to be a satisfactory “curriculum” decades ago. The responsibilities of a general ophthalmologist are very different now than they were 20 years ago and will likely be very different 20 years in the future. Medical knowledge and treatment modalities continue to grow exponentially while the overall duration of training programs has remained unchanged. Residency programs are tasked with delivering excellent clinical and surgical training without compromising the quality of patient care. In addition, physicians are expected to utilize information technology, navigate complex healthcare delivery systems and demonstrate ongoing improvement in quality and safety.
The result is that residency programs of the future will likely depend on increasing and earlier subspecialization, improved surgical training via advancements in surgical simulation, and increased integration of technology into medical training.

THREE YEARS ARE NOT ENOUGH
The traditional three-year ophthalmology residency program was designed to prepare the graduating resident to be a truly “comprehensive” ophthalmologist, with a broad knowledge of eye diseases and their treatments and capable of performing not just cataract surgery, but also glaucoma filtering surgery, simple eye muscle surgery, basic repair of retinal detachments and a variety of other procedures. As each of these subfields evolved, however, it became apparent that longer training was needed to achieve the proficiency to provide these treatments autonomously after residency.

As a result, at least 10 subspecialty fellowships now exist, and the majority of subspecialty care (especially surgical) has become the domain of fellowship-trained ophthalmologists. Although the ACGME recommendations have been revised several times, residents are still expected to perform a minimum number of subspecialty procedures regardless of their ultimate career path.

EARLIER SUBSPECIALIZATION
Aside from lengthening the duration of training (which may ultimately be necessary from either the residency or fellowship perspective), programs may be able to better cater to the needs of a resident who has chosen a subspecialty path earlier in his or her training. Flexible curricula with earlier subspecialization would allow greater assimilation of career-specific medical knowledge and procedural training.

For someone who is committed to a career in oculoplastic surgery, for example, it might be prudent to spend more time during residency performing orbital and extraocular procedures rather than a high volume of intraocular surgery. Alternatively, we may witness the conversion of certain subspecialties to separate integrated residency programs, much like what has occurred in other surgical specialties. Similar to stand-alone residencies in vascular surgery, cardiothoracic surgery and plastic surgery, we may begin seeing dedicated residency programs for vitreoretinal surgery or oculoplastic surgery.

MORE SIMULATION TRAINING
Resident surgical training will become progressively more reliant on, and benefit increasingly from, computer simulation and ophthalmic training devices. At the Cole Eye Institute, we have already implemented one of the most comprehensive surgical simulation training programs in the country (more than 100 hours of mentored microsurgical training during the first year of residency), with the potential to develop even better microsurgical proficiency. The future will undoubtedly bring an expanded role for virtual reality as well as engineered ocular analogues to increase the realism of surgery in the training environment.

The oft-repeated medical-training mantra of “See one, do one, teach one” is no longer compatible with high-quality patient-centered care. Adequate preparation prior to direct patient contact is the only answer. Abraham Lincoln perhaps provided a better analogy for modern medical training when he said: “Give me six hours to chop down a tree and I will spend the first four sharpening the axe.”

TECHNOLOGY TO HAVE A KEY ROLE
Ophthalmic care will continue to become increasingly intertwined with technology as advances in laser and optical technology, biosynthetic materials, and stem cell and genetic therapy expand exponentially, opening opportunities for treatment of conditions that were heretofore untreatable. Furthermore, the availability and increasing quality of long-distance or “tele-” medical care will allow ophthalmologists to provide consultation for patients in remote areas.

Educational alliances between training programs around the globe can provide residents with opportunities to participate in the evaluation and treatment of patients with problems that may be underrepresented in their geographic area. Further integration of computers into medicine is inevitable, and academic training programs will be at the forefront of computer-assisted decision-making. Rapid, real-time computer analysis of exam findings and symptomatology will assist in generating differential diagnoses in complex or unusual cases and provide recommendations for management based on the most current evidence-based medicine. Residency programs will need to stay on the cutting edge of these improvements to ensure that trainees are exposed to all the tools they will likely encounter in their careers.

COMMITMENT REQUIRED
Ultimately, the mission of educating the next generation of ophthalmologists rests on a commitment to constantly re-evaluate curricula and education methods and to make sure that graduates are prepared for the real-world practice of ophthalmology. Simultaneously, residency programs must achieve these goals while continuing to provide high-quality and economical patient care in an increasingly cost-conscious environment. Successful residency programs of the future will need to be adaptable, efficient and aligned with like-minded hospital systems that place a high value on training their future colleagues and successors.
The following studies are either currently enrolling patients or are pending approval by the Institutional Review Board and should be enrolling shortly:

**RETINAL DISEASES**

**A Two-Year, Randomized, Double-Masked, Multicenter, Three-Arm Study Comparing the Efficacy and Safety of RTH258 Versus Aflibercept in Subjects with Neovascular Age-Related Macular Degeneration**

*Objective:* Comparing the efficacy and safety of RTH258 versus aflibercept in subjects with neovascular age-related macular degeneration with respect to the change in best-corrected visual acuity (BCVA) from baseline to Week 48.

*Contact:* Rishi Singh, MD, 216.445.9497, or Dionne Chandler, MHA, 216.444.3735

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**A Multicenter, Two-Stage, Open-Label Phase I and Randomized, Active Controlled, Masked Phase II Study to Evaluate the Safety and Efficacy of Intravitreal Implantation of NT-503-3 Encapsulated Cell Technology Compared with Eylea® for the Treatment of Recurrent Subfoveal Choroidal Neovascularization (CNV) Secondary to Age-Related Macular Degeneration (AMD)**

*Objective:* Comparing the efficacy and safety over 108 weeks of a single intravitreal implantation of the NT-503-3 ECT vs. Eylea (aflibercept) injected intravitreally every 8 weeks in patients with recurrent subfoveal choroidal neovascularization (CNV) secondary to age-related macular degeneration (AMD) who have been previously treated with anti-VEGF injections.

*Contact:* Rishi Singh, MD, 216.445.9497, or Diana McOwen, BSN, RN, 216.445.2264

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**A Phase II, Multicenter, Randomized Active Treatment-Controlled Study of the Efficacy and Safety of the Ranibizumab Port Delivery System for Sustained Delivery of Ranibizumab in Patients with Subfoveal Neovascular Age-Related Macular Degeneration**

*Objective:* Evaluate the relative efficacy of 10-mg/mL, 40-mg/mL and 100-mg/mL formulations of ranibizumab, delivered via the implant, as measured by the time a patient first requires implant refill according to protocol-defined refill criteria.

*Contact:* Rishi Singh, MD, 216.445.9497, or Dionne Chandler, MHA, 216.444.3735

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**A Phase II, Multicenter, Randomized, Single-Masked, Sham-Controlled Study of Safety, Tolerability and Evidence of Activity of Intravitreal APL-2 Therapy in Patients Geographic Atrophy (GA) — FILLY**

*Objective:* To demonstrate superiority of monthly and every-other-month APL-2 IVT injections compared with sham injections based on the mean change in GA lesion size as measured by FAF and the number and severity of treatment-emergent adverse events.

*Contact:* Rishi Singh, MD, 216.445.9497, or Amber Bourcier, MPH, 216.445.7176

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**Peripheral and Macular Retinal Vascular Perfusion and Leakage Dynamics in Diabetic Macular Edema and Retinal Venous Occlusions During Intravitreal Aflibercept Injection (IAI) Treatment for Retinal Edema (PERMEATE Study)**

*Objective:* Evaluate the retinal vascular dynamics associated with IAI therapy in eyes with diabetic macular edema or macular edema secondary to retinal vein occlusion.

*Contact:* Justis Ehlers, MD, 216.636.0183, or Laura Stiegel, 216.636.0183
Prospective Intraoperative and Perioperative Ophthalmic Imaging with Optical Coherence Tomography (PIONEER Study)

Objective: Assess the feasibility and utility of intraoperative OCT and perioperative OCT in optimizing the management of surgical ophthalmic diseases.

Contact: Justis Ehlers, MD, 216.636.0183, or Jamie Reese, RN, 216.636.0183

Ozurdex for Diabetic Macular Edema Treated with Pars Plana Vitrectomy and Membrane Removal (OPERA Study)

Objective: Examine the use of Ozurdex® (dexamethasone intravitreal implant) in patients who are undergoing pars plana vitrectomy for macular edema due to diabetic macular edema.

Contact: Sunil Srivastava, MD, 216.636.2286, or Kim Baynes, 216.444.2566

UVEITIS

A Randomized, Masked, Multicenter Study to Assess the Safety and Efficacy of CLS-TA, Triamcinolone Acetonide Injectable Suspension, in the Treatment of Subjects with Macular Edema Following Uveitis

Objective: This study is to evaluate the safety, tolerability and efficacy of CLS-TA in patients with macular edema following noninfectious uveitis.

Contact: Sunil Srivastava, MD, 216.636.2286, or Kim Baynes, 216.444.2566

Automated Analysis of Anterior Chamber Inflammation by Optical Coherence Tomography

Objective: A prospective, observational, case series investigating the feasibility of utilizing optical coherence tomography (OCT) scans of inflammation in the anterior chamber, vitreous and sclera of patients with uveitis.

Contact: Sunil Srivastava, MD, 216.636.2286, or Kim Baynes, 216.444.2566

PEDIATRIC EYE DISEASE

Glasses Versus Observation for Moderate Hypermetropia in Young Children (HTS1)

Objective: To compare VA outcomes and development of strabismus in children age 12 months to < 72 months over 3 years. Children must have moderate hyperopia (spherical equivalent of +3.00 D to +6.00 D). Children receive glasses at the study onset or after confirmation of prespecified criteria.

Contact: Elias Traboulsi, MD, 216.444.4363, or Sue Crowe, RN, 216.445.3840

Binocular Computer Activities for Treatment of Amblyopia (ATS18)

Objective: To compare the effectiveness of 1 hour/day binocular game play with 2 hours/day patching in children 5-17 years old.

Contact: Fatema Ghasia, MD, 216.444.4363, or Sue Crowe, RN, 216.445.3840

GENETICS

Molecular Genetics of Eye Diseases

Objective: Study the molecular ophthalmic disorders through the compilation of a collection of DNA, plasma and eye tissue samples from patients and families with a broad range of eye diseases and malformations.

Contact: Elias Traboulsi, MD, 216.444.4363, or Meghan Marino, 216.445.7671

Genetics in Uveitis

Objective: Identify changes in genes that may lead to uveitis.

Contact: Sunil Srivastava, MD, 216.636.2286, or Meghan Marino, 216.444.2566
2015 Graduating Residents

› Katie Hallahan, MD
Cornea, Refractive and Anterior Segment Surgery Fellowship; Baylor College of Medicine; Houston

› Priyanka Kumar, MD
Pediatric Ophthalmology Fellowship; Emory University; Atlanta

› Tal Rubinstein, MD
American Society of Ophthalmic and Reconstructive Surgery Fellowship; Aesthetic Eye Associates; Seattle

› Jack Shao, MD
Associate Staff; Cole Eye Institute, Cleveland Clinic; Cleveland

2015 Graduating Fellows

Cornea/External Disease & Refractive Surgery
› Naveen Mysore, MD, PhD: Surrey Eye Care Center; Surrey, British Columbia, Canada

› Surajit Saha, MD: Virginia Eye Consultants; Norfolk, Virginia

Glaucoma
› Qui Vu, MD: Foothill Eye Institute; Pasadena, California

Ophthalmic Oncology
› Hassan Abdul Aziz, MD: Vitreoretinal Fellowship; University of Southern California; Los Angeles

Vitreoretinal Surgery
› Ashleigh Levison, MD: Retinal Consultants of Arizona; Phoenix

› Adiel Smith, MD: Delray Eye Associates; Delray Beach, Florida

3rd Year (PGY-4)
› Maria Choudhary, MD
› Joseph Griffith, MD
› Nathaniel Sears, MD
› Adam Weber, MD (Chief Resident)

Current Fellows

Cornea/External Disease & Refractive Surgery
› Brad Kligman, MD (2015-2016)
› Angelique Pillar Topaloglu, MD (2015-2016)

Medical Retina & Uveitis
› Angela Bessette, MD (2015-2016)

Ophthalmic Oculoplastic Surgery
› Rao Chundurry, MD, MBA (2014-2016)

Ophthalmic Oncology
› Sean Platt, MD (2015-2016)

Pediatric Ophthalmology & Strabismus
› Sunju Park, MD (2015-2016)

Vitreoretinal Surgery
› Andrew Browne, MD, PhD (2015-2017)
› Mehnaz Khan, MD (2015-2017)
› Yasha Modi, MD (2014-2016)
› Paula Pecen, MD (2014-2016)

Current Residents

1st Year (PGY-2)
› Waseem Ansari, MD
› Sruithi Arepalli, MD
› Alexander Barnes, MD
› Daniel Cherfan, MD

2nd Year (PGY-3)
› Brandon Baartman, MD
› Daniel Feiler, MD
› Preethi Ganapathy, MD, PhD
› Vishal Parikh, MD

CME Activity

› Uveitis Update: March 5, 2016
› North Coast Retina Symposium: May 20-21, 2016

For more information about Cole Eye Institute residency and fellowship training, go to clevelandclinic.org/EyeTraining or contact Rose Zeitz at zeitzr@ccf.org.
The Cleveland Clinic Cole Eye Institute is proud to present the 2016 Distinguished Lecture Series, which provides a forum for renowned researchers in the visual sciences to present their latest research findings. This series of lectures will feature advances in many areas of ophthalmic research presented by noted basic and clinical scientists from throughout the world.

Jan. 21, 2016
Photoreception in the Womb: Mechanisms and Consequences
David Copenhagen, PhD
Professor of Ophthalmology & Physiology
Department of Ophthalmology
University of California, San Francisco
San Francisco, California

Feb. 18, 2016
Endoplasmic Reticulum Stress in Retinal Degeneration
Jonathan Lin, MD, PhD
Associate Professor of Ophthalmology and Pathology
Shiley Eye Institute
University of California, San Diego
La Jolla, California

March 3, 2016
More than Meets the Eye: Functions of Novel Opsin Photopigments in the Retina and Beyond
Russell N. Van Gelder, MD, PhD
Professor and Boyd K. Bucey Memorial Chair
Department of Ophthalmology
Adjunct Professor, Departments of Biological Structure and Pathology
University of Washington
Seattle, Washington

April 21, 2016
Expanding Our View: Ultrawidefield Imaging in Retinal Disease
Barbara Blodi, MD
Professor of Ophthalmology
Medical Director, Fundus Photograph Reading Center
Department of Ophthalmology and Visual Sciences
University of Wisconsin – Madison
Madison, Wisconsin

May 19, 2016
A Perfect Storm: Retinal Inflammation, Angiogenesis and Neurodegeneration
Rajendra S. Apte, MD, PhD
Paul A. Cibis, Distinguished Professor of Ophthalmology
Professor of Developmental Biology and Medicine
Director of Translational Research
Washington University School of Medicine
St. Louis, Missouri

Sept. 15, 2016
From the Lab to the Lane: Translational Research in Corneal Disease
Anthony J. Aldave, MD
Professor of Ophthalmology
Walton Li Chair in Cornea and Uveitis
Chief, Cornea and Uveitis Division
Director, Cornea and Refractive Surgery Fellowship
The Jules Stein Eye Institute
Los Angeles, California

Oct. 20, 2016
Wiring the Binocular Circuit: Clues from the Albino Visual System
Carol A. Mason, PhD
Professor of Pathology and Cell Biology,
Neuroscience and Ophthalmic Science
Zuckerman Mind Brain Behavior Institute
Columbia University
New York, New York

Nov. 17, 2016
Maintaining or Restoring Central Vision in Retinal Degenerations
José-Alain Sahel, MD
Director, Centre de Recherche Institut de la Vision
Professor, Université Pierre et Marie Curie
Paris, France

Time and location: All programs are from 7 to 8 am in the James P. Storer Conference Center on the first floor of Cole Eye Institute.
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Please direct any correspondence to: ophthalmologyupdate@ccf.org

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